

NEW ARRANGEMENTS FOR FOREST SCIENCE

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by FAO, IUFRO and CIFOR



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Recognition of the Need for More and Better Forest Research

The draft report from the IPF Co-Chairs to the CSD has recognised that major new initiatives in forest science are urgently needed if forests and forestry, throughout the world, are to contribute their full potential to meeting today's needs and those of the 21st century. The Panel has concluded that not only is new and additional research required on the set of priorities that the IPF has identified (Para 92), but also that it must be undertaken in more integrated and holistic ways. It is implicit in IPF III draft documents that institutional arrangements for promoting and coordinating forestry research could and should be improved (although not necessarily through the creation of a new body). Ways and means to strengthen or revitalise some existing national institutions have already been identified (Para 91). However, in addition to this, improved coordination mechanisms must be forged, not only within the forestry sector as usually defined, but also with environmental and economic agencies, within and between countries, and also with international bodies like the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity and the Committee on Science and Technology of the Convention on Combating Desertification.

The Co-Chairs' report also called for proposals for

“measures to focus and improve coordination of forest research and development, possibly through the development of a strategic framework for a global forest research network, making full use of existing organizations...” para 93

CIFOR, FAO and IUFRO are pleased to be able to offer the following commentary on this challenge.

The Basics - A More Interdisciplinary Approach to Forest Research

In the past, forest research has generally been poorly linked to research on social, economic and ecological issues relating to forests. This must change if we are to achieve a holistic understanding of the role of forests in society. Many of the problems facing forest science can only be adequately understood and addressed by adopting an interdisciplinary approach that combines methodologies from the social and biological sciences, including economics, geography, political science and sociology, in a combination that addresses each problem most effectively.

One of the Inter-Sessional Workshops convened in support of the IPF addressed this need for new approaches to research. The International Workshop on Integrated Application of Sustainable Forest Management Practices (Kochi, Japan, November 1996) concluded *inter alia*:

A new culture on land use planning and forest research and extension recognizes and accepts that integration of a wide variety of environmental, social and economic values, needs and aspirations is essential to achieve sustainable forest management practices... recognizes the linkages between field level and international level... involves institutional changes and linkages including new mechanisms for decision-making... Research in this new culture is stake-holder-driven, focused and practical. Planning is iterative between planning levels and evolutionary over time; it results in implementation of planning decisions. The products of this emerging culture will be a new generation of applied research and its inclusion in all levels of planning processes is an important supportive tool necessary for achieving sustainable forest management.

Progress in these priority areas of integrated socio-biophysical studies, management planning, forest policy and monitoring will definitely require substantial changes in the organisation of research. The new forest science to study the wider role of “forests in society” will have greater emphasis on identifying underlying processes, rather than applied research limited only to forest management and timber production. International collaboration is necessary to develop research conclusions that are globally useful and acceptable and that can support local and national development goals.

Forestry research needs to be integrated at successive levels:

- (i) within each institution (Research Centre, University, NGO, etc.) among different forestry disciplines, but especially the biophysical and social sciences, to undertake inter-disciplinary research to the extent possible;
- (ii) between forestry research groups and other scientific groupings within the same country, e.g. among forestry, agriculture, planning, policy, economics and other social sciences; and
- (iii) among international institutions, e.g. IUFRO, CIFOR, FAO. This need for integration at the international level is the focus of this paper.

The research institutions that produce the new holistic, strategic understanding of forests may not be the traditional Forest Research Institutes that are often part of the structure of national forest services. They may be research institutions with a mandate beyond the conventional forestry goals of maximising sustainable timber production. New research is necessary and appropriate because there is still so much to discover about the role of forests in society, and so many processes and relationships to identify. Institutions and funding agencies will need to allocate resources for inter-disciplinary training, particularly in developing countries, so that personnel can develop the skills necessary to undertake such research. The constraints placed on formal study programmes may need to be changed to recognise the important role of broader scientific training. Although past professional and academic discrimination against those skilled in interdisciplinary research is fading, the Kochi Workshop called for “*developing rewards and incentives for conducting applied, multi-disciplinary and participatory research.*” This statement

recognises the numerous constraints and impediments that still face forestry researchers in many developing countries.

Developing a new mechanism (strategy/initiative) for global or eco-regional interdisciplinary forestry research should incorporate and integrate:

- a “clearing house” that guides the identification, definition and prioritisation of interdisciplinary research problems and evaluates the results of research addressing them;
- research institutes, consortia or networks that lead and organize the research and ensure that the results are made available to users; and
- a body that assists with capacity building and dissemination of results.

These however, should be seen as integrated rather than independent functions, and each of them should be undertaken with the active involvement of appropriate national institutions.

Enhanced International Collaboration and Coordination

The scientific challenges posed by global climate change were met by the establishment of international research frameworks such as the International Geosphere and Biosphere Program, and its subsidiary the “Global Change and Terrestrial Ecosystems” initiative. No similar initiative has arisen in response to the widely recognised need for more focused and integrated problem-solving through global forest science.

A new forestry research “framework” will not be achieved by concentrating all funding, priority-setting and planning within any single institution. Coordination of *functions* and activities can be achieved without centralisation of *administration*.

Indeed we argue that a global marketplace of ideas in forest science, with active communications networks between widely dispersed, autonomous research institutions, is more likely to be cost-efficient and effective in creating high-quality, useful solutions, than a centralised mechanism for coordinating and allocating resources.

The strategy that we believe is most likely to succeed will be to encourage existing research groups and institutions to collaborate at both the national and international levels. However, there are three apparent weaknesses:

- i) present research structures are designed to focus primarily on biological and local forest management practices, and thus are often inadequate for forest policy and socio-economic analysis and global-scale research;
- ii) research generally aims only at finding immediate solutions to local problems; and

- iii) incentives to collaborate are sometimes lacking. Existing forestry research organisations are usually committed to their present agendas. Those willing and with the resources to work in the new research areas are still relatively few in number.

Some new mechanisms are therefore necessary - to strengthen both the individual units and the linkages between them - to enable this concept of a "world-wide web of forest researchers" to function effectively, and to be closely linked with real-world forest management problems.

An analysis of the numbers of forest research institutions and universities throughout the world and their staffing levels clearly shows how few developing countries have even a minimal capacity in forest science (in terms of numbers of institutes, staff or budgets). The effectiveness of the few scientists working on forest issues in developing countries is frequently constrained by shortages of equipment and operating budgets, by limited access to scientific advances elsewhere (through literature, training and attendance at research meetings), and local institutional issues. Some research staff and administrators may be unconvinced that the returns to collaborative efforts are sufficiently rewarding, compared with pursuing a solitary and single-discipline project. Some institutional structures are inimical to cooperation, accidentally or deliberately discouraging contacts between disciplines, departments and ministries because of the administrative complexity which such collaboration can imply when different sources of public moneys are pooled. In certain countries, formal research staff sometimes function effectively but informally in NGOs or with private sector support, outside of the official systems. More recognition of the local validity of informal systems might also help make international partnerships more effective.

There are ways round almost all these obstacles, but the effort may not be recognised as worthwhile until there are enough well known success stories to convince all stakeholders that cooperation is definitely worth pursuing. While voluntary international cooperation in forestry research has a long and distinguished history through IUFRO, it has been largely self-directed and self-funded, relying on the energy and goodwill of the membership. Some bi-lateral development assistance agencies have actively promoted and achieved cooperation between scientists in developing countries and their own country. The establishment of CIFOR is a recent initiative to foster wider international cooperation between forest researchers.

It is not desirable that international forestry research be centrally directed. This would be counter-productive, given its exploratory nature. However, coordinating or harmonising individual efforts, which are physically dispersed but on a common theme, can achieve very great advances. Even if a coordinating group merely lists the key *inter-disciplinary* research questions and acts as a clearing house to bring researchers together to address these, it will serve a useful function. Large-scale international forest research collaboration has already been successful in the areas as diverse as: modeling world trade in forest products; identifying causes and impacts of global climate change and possible mitigation strategies; and international provenance and tree-breeding trials for forest plantation species.

A similar mechanism might help to achieve the proposed renewal and redefinition in forest science. The actual work plan for a new international network could be modeled on the research agenda presented and discussed at IPF. Papers could be commissioned to review the state of the art in those particular areas, and synthesised to produce a comprehensive report which also identifies gaps to be filled by further inter-disciplinary research. Understanding could be further advanced by other specially commissioned short-term collaborative research projects, combined with long-term research initiatives in selected areas. All this presumes a mechanism to disburse international funds to support the high-priority, collaborative research activities. It is imperative that the eventual clients of forest research have involvement not only in the identification of research topics but also in the conduct of the research activities.

A Model for Coordinated, Priority Forest Research

Ideally, an international framework for inter-disciplinary research collaboration would:

- provide a support mechanism for scientists from developing countries;
- promote comparative and widely applicable analysis;
- allow a division of labour to maximise efficiency and minimise wasteful duplication;
- enable scientists from different disciplines to interact constructively;
- ensure the critical mass of effort needed to make important breakthroughs;
- facilitate research in practical ways, by improving accessibility of large global datasets used by researchers in individual countries;
- provide a focus for addressing priority strategic research questions identified in close collaboration with clients;
- serve as a vehicle to guide allocation of funds;
- provide access to existing information including databases, compendia and other value-added information products; and
- provide a “bulletin board” to promote rapid electronic communication.

Many of these functions are currently being serviced through the activities of IUFRO, CIFOR and FAO.

The inter-disciplinary research program would cover countries in all eco-regions. The governments of interested industrialised countries could collaborate to fund research, carried out by their own scientists, as well as by counterpart scientists from developing countries. Research carried out through and by local people can often provide access and insights not available to the outsider. Partnerships between developed and developing countries, and between different developing countries, are critical to the advancement of the initiative. Whatever structure might finally be established to pursue these functions, the existing capacities and networks of IUFRO, FAO and CIFOR, as well as regional institutions like CATIE¹ and consortia like APAFRI², should be fully exploited to achieve maximum impact and efficiency.

IUFRO, FAO and CIFOR are very different organisations with complementary strengths. Elaboration of their roles, strengths and the solid existing relationships and complementarity between them, may help illustrate some of the options for an improved global framework for forest science. Essentially, the role envisaged for each institute is the following:

- CIFOR undertakes inter-disciplinary collaborative research;
- IUFRO is an independent clearinghouse and source of scientific information, and provides for networking between scientists;
- FAO assists countries in capacity building to cater for executing the proposed research and implementing its results. FAO also disseminates research results through its field programme.

A new global framework might, for example, build upon the extensive coverage of IUFRO, the inter-disciplinary and collaborative mechanisms of CIFOR and the practical field presence and global data sources of FAO.

Such a combination, of three very different types of organisations, would be able to implement the “concept” described on page four.

¹ Centro de Agronomico Tropical de Investigacion y Ensenanza, Turrialba, Costa Rica

² Asia-Pacific Association of Forest Research Institutes, based in Bangkok, Thailand

The UN Food and Agriculture Organisation has a mandate to

- (i) serve as a neutral forum for its member countries (major stakeholders), for discussion and identification of research goals of global or eco-regional concerns;*
- (ii) collect and distribute information and statistics (such as the **Forest Resources Assessment, State of Forests and the State of Food and Agriculture**);*
- (iii) manage a global field programme, which could be a source of need-identification as well as information dissemination.*

Furthermore, the existence of several disciplines related to forestry research, within the FAO, is a unique advantage. For example forestry can interact vigorously with agriculture, fisheries, socio-economics and overall Sustainable Development in many areas including research needs, identification and dissemination.

The Forestry Department at FAO has a specialised unit for Forest Research, Education and Extension (FREE) whose mandate and scope of work also covers capacity building in these areas.

continued ...

*The **International Union of Forestry Organisations** is one of the oldest international non-governmental organisations in existence. Established in August 1892, its membership now comprises 715 forestry research institutions which represent more than 15,000 scientists in 115 countries. IUFRO is not itself a research organisation but rather an association of research organisations. Its principal function is to provide opportunities for scientists from the member organisations to learn from each other, either at meetings or through collaborative activities. Except for a World Congress which is held at five-year intervals, the meetings and activities are undertaken largely through eight Divisions, each of which is subdivided into Research Groups and Working Parties. The Divisions' disciplinary areas of work are (1) Silviculture; (2) Physiology and Genetics; (3) Forest Operations; (4) Inventory, Growth & Yield, Quantitative and Management Sciences; (5) Forest Products; (6) Social, Economic, Information, and Policy Sciences; (7) Forest Health; and (8) Forest Environment.*

***CIFOR** as an internationally funded research institute, a member of the network of independent institutes funded through the Consultative Group for International Agricultural Research, has a modest budget and staffing-level, and a mandate that covers only some of the topics and countries covered by FAO and IUFRO. Through consultations with most research institutions, forest management agencies and donors over the past 5 years, CIFOR has devised a very targeted inter-disciplinary research program on high priority questions (very similar to those identified by the IPF) which it is investigating in partnership with scientists from developing countries and leading international forest research institutions.*

Funding Research on Forests

A new appreciation of the need for, and value of, innovative, critical, interdisciplinary research should bring expanded funding opportunities. Following the deliberations of IPF, most funding agencies must already be convinced of the value of funding research in the areas proposed here. The priority activities proposed by the IPF are both implementable and of prime concern.

Forest scientists recognise the need to diversify their funding sources. Government forestry departments will not immediately be able to reallocate funding to new research directions. However, other funding agencies may be able to provide resources for a new strategic agenda. Greater diversity of funding will also lead to a more independent forest science which can simultaneously provide informed comment as well as guidance. If forest management in some countries is devolved to local communities and in others is increasingly in the hands of private companies, this may also affect the funding and organisation of research. In recognition of trends towards smaller government, and with the globalisation of forest industries, the nature and composition of funding for forest research may change, with limited government and NGO funds increasingly concentrated on social and environmental “public goods” while industries finance research with commercial applications.

The global trend to “privatize” FRIs, however much it may increase their cost-efficiency, would tend to lead institutions to re-organize their mandates and strategies to accommodate the interests of the new stakeholders. But governments will still have to pay for such “public goods” research, and especially for international public goods, multi-lateral or inter-governmental funding will still be essential.

Other Changes in Research Organisation

There must be extensive changes in the organisation of forest research. The international research program will undoubtedly be complemented by independent projects undertaken by individual researchers in national forest research centres or in universities, on matters of high priority nationally. Some research centres may establish specialist units focusing on particular aspects of the new research agenda. For this new direction to become well established in forest science generally, it is important that forest research institutes and university forestry departments diversify their disciplines and in particular include social scientists.

Already, much research in the new priority areas takes place outside conventional forest research centres, in other university departments, private non-profit research institutes and NGOs. As the influence of NGOs increases, which is probable if forest management becomes more decentralised, they may require more research support (perhaps from government research institutes), and are likely to undertake more research themselves. In India, for example, there are already extensive NGO networks monitoring and analysing forest regeneration and succession, under the Joint Forest Management program. This constitutes a parallel, non-governmental research capacity, a “virtual FRI”. The research activities of commercial forestry organisations are also likely to expand, especially in countries where governments devolve management of forests to the private sector.

Putting Research Results into Practice

The results obtained from this type of research, undertaken in the manner proposed here, will lead to major advances in our understanding of the role of forests in society, and improved techniques for forest planning and management for an era of more sustainable development. However, the results must be put into practice, so they need to be communicated effectively to policy makers and forest managers. This is a vital element and emphasises the need to improve communication of research findings in the priority areas. The users of the information will vary from university level researchers to local forest dwellers and managers. At each level of dissemination, a different and innovative communication facility may be needed. Where personnel to “spread the word” are scarce, substantial resources may need to be directed towards communications-training.

Modern information technology is an effective communication tool. The IPF process has demonstrated the potential for improving access to forest resource information by various kinds of assessment activities, and giving policy makers and forest managers more sophisticated decision-support tools. A partnership between policy makers and researchers is essential for improvement in the techniques to deal with the issues presented in pursuit of sustainable forest management. Researchers will need to recognise that government is not their only client. They will also have to service the different needs of many stakeholders, including small communities and ensure that research results are communicated effectively to every type of client, especially those who are not on the “information super-highway”.

Conclusions

Changes are occurring rapidly in how forests are managed, by whom and for what purposes. To embrace these challenges, radical changes are imminent in the nature of forest science - the way it is organised and funded and the way it is undertaken in practice. The need for change is urgent - this is clearly recognised by many leading forest scientists, although not the entire forest research community. Collectively, IUFRO, FAO and CIFOR present an (exciting) opportunity to ensure clients' priorities for forest research are properly identified, and to respond accordingly.

As forest scientists widen their field of view and look at problems in a cross-sectoral way, and with a sense of history, they start to ask, and answer, more of the most pressing questions. If they adopt an analytical, rather than a descriptive approach, they will make many new discoveries. The new policy environment in which forest science now has to operate reflects a growing concern about environmental change, locally and globally, and the need to control this through more sustainable development. The heart of the problem is to achieve a balance between the needs of all people; to recognise that changes in forest health have multiple impacts on both local and global environments. Forests are a key part of the interface between humanity and the environment. They can no longer be studied as though they are simply “outdoor factories to produce wood-fibre”, divorced from society and as if forest activities are only of local concern. In the real world, forests play a fundamental role in society and can have impacts at all scales. As more forest scientists, and others, appreciate this, the world will realise the true importance of forests and their central role in sustainable development.

The suggested actions which emerge from this review are :

1. Recognition of the need for a greater, and qualitatively different, forest research agenda than has existed in the past (national or local in scope and oriented mainly towards industrial timber production)
2. Strengthening of mechanisms to transfer those researchable problems identified in fora such as the IPF, to the research communities.
3. Dismantling of financial and institutional impediments to effective and enhanced cooperation, whether these occur at national or international level.

Recommendations

IPF may wish to recommend:

to FAO/CIFOR/IUFRO:

that they work with other international forestry and environmental research institutions to facilitate such coordination and develop a strategic framework for global forest research

to the International community (especially those in charge of ODA):

that they recognise this new improved international coordination mechanism, whose objectives also include capacity building and strengthening of national and regional research systems, and

that they consider how the forest research community, funding agencies and research users can harmonise strategies, ensure adequate resources for research and disseminate results.

to the Commission on Sustainable Development:

that the opportunities and needs for improved forest science be addressed in whatever mechanisms are adopted to follow on the work of the IPF, and

that consideration be given to the need for a “Strategic Framework for Global Forest Research”.